

Progressing Cavity Pump Systems for Artificial Lift—Pumps

Upstream Segment

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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ISO 15136-1 was prepared by Technical Committee ISO/TC 67, *Material equipment and offshore structures for petroleum, petrochemical and natural gas industries*, Subcommittee SC 4, *Drilling and production equipment*.

This second edition cancels and replaces the first edition (ISO 15136-1:2001), which has been technically revised.

ISO 15136 consists of the following parts, under the general title *Petroleum and natural gas industries — Progressing cavity pump systems for artificial lift*:

- *Part 1: Pumps*
- *Part 2: Surface-drive systems*

Introduction

This part of ISO 15136 has been developed by users/purchasers and suppliers/manufacturers of progressing cavity pumps and is intended for use in the petroleum and natural gas industry worldwide. This part of ISO 15136 provides requirements and information to both parties in the selection, manufacturing, testing, and using progressing cavity pumps as defined in the scope. Further, this part of ISO 15136 addresses supplier requirements, which set the minimum parameters with which it is necessary that suppliers comply to claim conformity with this part of ISO 15136.

This part of ISO 15136 provides grades of requirements for design validation, quality control and functional evaluations allowing the user/purchaser to select each for a specific application. There are three grades of design validation and quality control, and two grades of functional testing. Design validation grade V3 is restricted to legacy products, the basic grade is V2 and the highest grade is V1. Quality control grade 3 is the standard grade and grades 2 and 1 provide additional requirements. Functional evaluation grade F1 requires a hydraulic test of the PCP and grade F2 does not. The user/purchaser has the option of specifying requirements supplemental to these grades.

It is necessary that the users of this part of ISO 15136 be aware that requirements above those outlined in this part of ISO 15136 can be needed for individual applications. This part of ISO 15136 is not intended to inhibit a supplier/manufacturer from offering, or the user/purchaser from accepting, alternative equipment or engineering solutions. This can be particularly applicable where there is innovative or developing technology. Where an alternative is offered, it is the responsibility of the supplier/manufacturer to clearly and completely identify any variations from the requirements of this part of ISO 15136.

Petroleum and natural gas industries — Progressing cavity pump systems for artificial lift —

Part 1: Pumps

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1 Scope

This part of ISO 15136 provides requirements for the design, design verification and validation, manufacturing and data control, performance ratings, functional evaluation, repair, handling and storage of progressing cavity pumps for use in the petroleum and natural gas industry. This part of ISO 15136 is applicable to those products meeting the definition of progressing cavity pumps (PCP) included herein. Connections to the drive string and tubulars are not covered by this part of ISO 15136.

This part of ISO 15136 includes normative annexes that establish requirements for characterization and testing of stator elastomer material, design validation and functional evaluation. Additionally, informative annexes provide information for PCP elastomer selection and testing, installation, start-up and operation guidelines, equipment selection and application guidelines, functional specification form, used pump evaluation, drive string selection and use, repair and reconditioning procedures and auxiliary equipment.

Equipment not covered by the requirements of this part of ISO 15136 includes bottom-drive systems except for the PCP components, drive-string components and auxiliary equipment such as tag bars, gas separators and torque anchors. These items might or might not be covered by other International Standards. Surface-drive systems are covered in ISO 15136-2.

2 Normative reference

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 34-1, *Rubber, vulcanized or thermoplastic — Determination of tear strength — Part 1: Trouser, angle and crescent test pieces*

ISO 37, *Rubber, vulcanized or thermoplastic — Determination of tensile stress-strain properties*

ISO 315-1:2008, *Rubber, vulcanized or thermoplastic — Determination of compression set — Part 1: At ambient or elevated temperatures*

ISO 2977, *Petroleum products and hydrocarbon solvents — Determination of aniline point and mixed aniline point*

ISO 4662, *Rubber, vulcanized or thermoplastic — Determination of rebound resilience*

ISO 4666 (all parts), *Rubber, vulcanized — Determination of temperature rise and resistance to fatigue in flexometer testing*